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FORMAT

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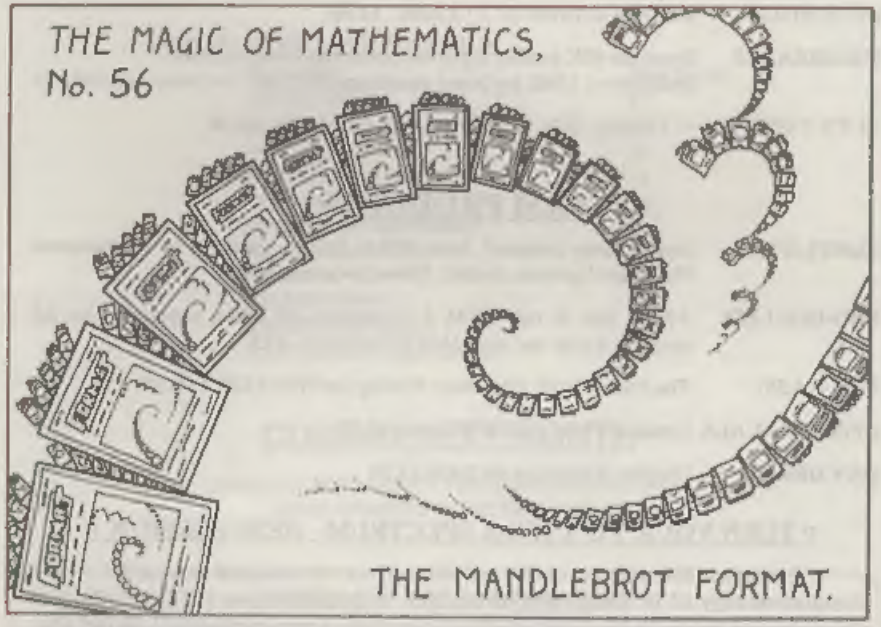

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COMING NEXT MONTH

LOOK OUT NEXT MONTH FOR SOME EXCITING NEW DEVELOPMENTS IN THE SAM WORLD.

FORMAT **ISSN 0963-8598**

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FORMAT **is published by FORMAT PUBLICATIONS.**
34, Bourton Road, Gloucester, GL4 0LE, England.
Telephone 0452-412572. Fax 0452-380890.

Printed by D.S.Litho, Gloucester. Telephone 0452-523198.

NEWS ON 4

SWAP SHOP AT OLYMPIA

A new type of computer and video games event has been announced. Called 'GameXchange 94' it will be held at London's Olympia on July 22nd to 24th.

Basically the event allows visitors to pay and entrance fee and then they can swap as many games as they want. They can also exchange games with exhibitors - something the organizers claim "will open up a substantial source of revenue for companies wishing to clear stock backlogs".

With admission priced at £7 (£5 for kids) this wont be anywhere near as cheap to visit as the Gloucester Shows.

MOVE UPDATE

The big move around in South Wales has caused a lot of disruption over the past month. As usual in this sort of thing packing and unpacking took far longer than the original plans called for but Blue Alpha are now settling down in their new home. Yes, as many of you pointed out, Blue Alpha's Swansea address is the one they used back in 1991/92. This though is only part of the picture. New, secure, workshops have been taken - far up in one of those Welsh valleys you hear so much about. It is to these that the move has been. The Swansea address being temporary for mail until everything is sorted out..

West Coast Computers have now started to move their stocks from Abernant, some moving to Blue Alpha's new store and some to sunny Gloucestershire. Although there is still much work to be done, the major disruption is happily now over.

TOO OLD FOR COMPUTER

One of Britain's oldest drivers found recently that he was too old for a computer.

Before our senior citizen readers snow me under with letters, pointing out that you are never too old for computers, let me explain.

Dick O'Brien of Malvern, Worcs, needed to obtain a new insurance policy for his vehicle after his first accident in 46 years. The problem? The computer only accepted the last two digits of his year of birth - 1898 - and promptly refused to accept the entry as it thought he had not been born yet, let alone be old enough to drive a car on the public roads.

Now it has to be admitted that for most drivers the program would have worked OK but it does go to show that programmers really need to think about things before they try to save space by truncating an input.

Dick? Well he is back behind the wheel, legal with the required insurance. How? Simple, they just entered his birth date as 1901. Oh if only you could drop a few years just like that.

NEW SAMS

Just as we go to press West Coast have announced a new look for SAM and the introduction of two special packs. One includes free games software, the other a free printer interface, either pack still at £199.95 + p&p. Full details next month.

Credits:- T.A.Gould.

URGENT we need your news. Anything you think other people should know about. Each item printed earns the contributor 3 months extra subscription (*please claim when next renewing*).

The Editor Speaks

This issue of FORMAT is early, and a bit smaller, because I wanted to get it out before the big show on April 30th at Gloucester. You are all coming I hope - if you don't you will be missing out.

Anyway, down to work. I want to tell you a story. No, don't worry, I'm not going to start singing like Max Bygraves, but I think it may be a story that will interest you.

As many of you will already know, we handle the duplication and dispatch of software for Revelation Software. We also do the duplication for a couple of other companies. So, together with our own range of software, we get through one hell of a lot of discs per month. Over the years I have purchased discs from a wide variety of sources and in general have had few problems. During duplication it is now very rare to get more than, say, one in five hundred discs that fail to format. Once a batch of disc has been duplicated (and most get verified as they are duplicated) a random sample of about 10% are test loaded just to make sure. At this point I must admit that I don't test 5¼" discs these days because I never have found an error after formatting (Why don't more people use 5¼" discs?)

Still, back to the story. A disc, (containing a game as it happens but that is irrelevant) was sent out to a Revelation customer. After a short time it came bouncing back with a covering letter saying it was faulty. Normally it is best to ring us if you experience problems because it is always easier to talk things over so as to avoid the need to return a product if possible. Ok, so the disc came back without a preceding telephone call - no probe, not everyone can get to a phone.

So. Test the disc. Funny, it worked on the main machine here in the office. So the disc was put to one side awaiting the usual SAE that the owner had in this case forgotten to enclose. Time passes, an indignant letter from owner and we decide to send the disc back, pointing out that there was no fault and pointing out that he should have sent the customary SAE.

Days pass, back comes disc with an even more indignant letter claiming it is still faulty. So at this point it was test, change machines, test again, change drives (perm combinations of 2 SAMs and 5 drives) and see what happens. Result, still no fault found. At this point I wrote to the customer detailing our testing procedure, pointing out that it looked very much like his machine was at fault. Unbeknown to him I did in fact send him a different disc - the ultimate test if you like, because the chances of two discs being faulty in exactly the same way are so remote it was not worth considering. Yes, you've guessed it, back it came with another letter saying his machine was perfect so it must be the disc, he would never buy a thing from Revelation or ***FORMAT*** again and would tell all his friends to do likewise.

The moral? Don't always assume that just because every other thing works on your machine there just cannot be a fault. Computers are mighty funny critters and never cease to be the more cantankerous things ever invented (other than cars that is).

Until next month.

Bob Brenchley, Editor.

WEST COAST COMPUTERS

SPECIAL ANNOUNCEMENT

NEW SAM DISC DRIVES

You have all heard of the problems the slim-line drive shortage has caused SAM over the last two years -well we have the solution. Our design team has perfected a way of fitting standard 3½ inch disc drives economically (and cosmetically pleasing) to SAM. All new machines shipped since the beginning of March have been fitted with the new drives. A single drive 512K SAM, order code W1001, still costs ***£199.95*** but a dual drive SAM, order code W1002, has now come down in price to ***£259.95*** (both prices plus P&P).

UPGRADING TO TWO DRIVES

Because the fitting of these drives requires alterations to SAM's main circuit board, it is not now possible for users to fit second drives to their machines themselves. Machines will need to be sent to our repair agents Blue Alpha for upgrade. However we are keeping the price of a second drive at ***£79.95*** but this now includes fitting and return (insured) postage. Just give our mail-order agents at Format Publications a ring on 0452-412572 and they will tell you how to return your machine. Special arrangements are being made for overseas customers - please write for details.

NEW DRIVES FOR OLD

In tests, these drives are proving far more reliable then the old slim-line drives. We are therefore prepared to make you some special offers if you want to upgrade your existing drive at the same time as you have a second drive fitted.

If your SAM was purchased from us within the last six months. We will upgrade your existing drive for just £20 when you have a second drive fitted.

If your SAM is over 6 months old but still under our 12 month guarantee. We will upgrade your existing drive for a payment of £34.95.

If your SAM is over 12 months old. Providing the existing drive is working when we test it we will upgrade you for £49.95. Even if your existing drive is not working we will still offer you a £20 trade-in on the faulty one when you have two new drives fitted.

EXTENDED WARRANTY

While having new drives fitted, your SAM will be fully tested, if there are any faults discovered you will be notified and given a chance to have them corrected while we have your computer. Blue Alpha have also agreed that for a single payment of £10 they will give your machine a full 'parts and labour' warranty for 12 months. This only excludes the drives (which are covered by our 12 month guarantee) and the power supply/modulator, this will be in addition to any WCC warranty still left on your machine. Not a bad offer I think you will agree. Make your cheque for extended warranty payable to Blue Alpha Electronics.

For other items - Please see last months advert.

To order machines or any other items please send your order to:-
West Coast Orders, Format Publications, 34 Bourton Road, Gloucester, GL4 0LE.

SHORT • SPOT

YOUR HINTS, TIPS AND PROGRAMMING IDEAS

Edited By:- John Wase.

Short Spot Calling! Here's this May's miscellany of bits and pieces, kicking off with with a SAMbit from Carol Brooksbank. Carol, being Carol, sends it with a letter with a beautiful plum-coloured letter heading individually and tastefully designed. She writes that she often finds that she has a SAM code file - a Mode 1 Screen, a DTP pack file or a wordpro ASCII code file that she would like to use on the Spectrum. Perhaps she would like to run off a few copies of a DTP layout she's just done on SAM, but also wants to use SAM for something else while she's doing it. Unfortunately, while SAM will load Spectrum code files without difficulty, the Spectrum will have nothing to do with SAM's, sniffily describing them as 'WHAT?' in the CAT listing.

This little program runs on SAM, but will convert such SAM files to ZX code blocks, which you can then use with either computer. Put the disc with the file you want to convert into Drive 1; RUN the program. The disc directory will be displayed. Make a note of the directory position of the code file to be converted. Get this right, because you will ruin a file if you convert the wrong one. Also note the code block length. Give the directory position in response to the 'program number?' prompt. In response to the 'start address?' prompt, give a start address that will allow the whole block to be loaded into the Spectrum (i.e. start+length must not exceed 65535 and start must not be below 16384). If the file is a Mode 1 screen, give 16384 as the start and 6912 as the length, but otherwise give the length displayed in the directory.

The program now runs. When it stops, just try DIR 1. The file is now displayed as a ZX file, which will load into SAM just as before, but will now also load into the Spectrum. Magic! Note that if the file was a Mode 1 screen, the conversion will take just a little bit longer, because the program deduces from the 6912 byte length and the 16384 start that it is dealing with a screen, and removes the SAM palette information from the last sector of the file. Not essential, says Carol, but tidier.

Carol has even used this program to convert a Spectrum SCREEN$ file into a 16384,6912 file because some SAM programs will load a ZX screen into Mode 1 if it is saved as a code file, but will not recognise a ZX SCREEN$ file. Do remember, though, USE IT WITH CARE!!! Give the wrong directory position or the wrong file length, and you may ruin a file for ever. Get typing!

```
10 CLEAR 39999
20 CLS : PRINT "Place disc wi
   th Sam MODE 1       screen
   or code file to be        c
   onverted in drive 1": PRIN
   T : PRINT "Press a key to
   continue": PAUSE 0
30 DIR 1
40 INPUT "Program number of s
   creen/code file? ";P
50 REM CALCULATE DIRECTORY SE
   CTOR AND LOAD DIRECTORY TO
    MEMORY
60 LET T=INT ((P-1)/20),S=INT
    (((P+1)-(20*T))/2)
70 READ AT 1,T,S,40000
```

```
 80 REM EVEN NUMBERED PROGRAMS
    IN SECOND HALF OF DIRECTO
    RY SECTOR
 90 IF INT (P/2)=P/2 THEN LET
    start=40256: ELSE LET star
    t=40000
100 REM CODE 4=SPECTRUM CODE F
    ILE
110 POKE start,4
120 INPUT "code address? ";ADD
    R
130 LET ADDRH=INT (ADDR/256),
    ADDRL=ADDR-(256*ADDRH)
140 INPUT "code block length "
    ;L
150 LET LH=INT (L/256),LL=L-(2
    56*LH)
160 LET D$="310 DATA 3,"+STR$
    LL+","+STR$ LH+","+STR$ AD
    DRL+","+STR$ ADDRH+",255,2
    55,0,0"
170 KEYIN D$
180 RESTORE 310
190 REM POKE FILE TYPE, FILE S
    IZE, & START ADDRESS AND C
    LEAR SIZE OF VARIABLES ARE
    A DIRECTORY BYTES
200 FOR X=(start+211) TO (star
    t+217)
210 READ A
220 POKE X,A
230 NEXT X
240 REM CLEAR AUTO-RUN LINE NU
    MBER AND SNAPSHOT REGISTER
     DIRECTORY AREAS
250 FOR X=(start+218) TO (star
    t+255)
260 POKE X,0
270 NEXT X
280 REM SAVE DIRECTORY
290 WRITE AT 1,T,S,40000
300 REM DATA FOR FILE DETAILS
310 DATA 3,45,84,64,156,255,25
    5,0,0
320 REM FIND FIRST SECTOR OF F
    ILE AND LOAD IT
330 LET T=PEEK (start+13),S=PE
    EK (start+14)
340 READ AT 1,T,S,40000
350 REM SET UP 9-BYTE FILE HEA
    DER
360 RESTORE 310
370 FOR X=40000 TO 40008
380 READ A
390 POKE X,A
400 NEXT X
410 REM SAVE START OF FILE
420 WRITE AT 1,T,S,40000
430 IF ADDR<>16384 OR L<>6912
    THEN STOP
440 REM LOAD SECTORS ONE-BY-ON
    E, FOLLOWING CHAIN OF "NEX
    T SECTOR" NUMBERS TILL LAS
    T SECTOR LOADED
450 FOR L=1 TO 13
460 LET T=PEEK 40510,S=PEEK 40
    511
470 READ AT 1,T,S,40000
480 NEXT L
490 REM CLEAR SAM PALETTE DETA
    ILS FROM FILE
500 FOR X=40291 TO 40341
510 POKE X,0
520 NEXT X
530 REM SAVE LAST SECTOR
540 WRITE AT 1,T,S,40000
```

Finally, a little note from Carol about Line 310. It doesn't matter what you put in this line, as it gets changed when the program runs. The data in the list printed here are the data for the file Carol last used to check all was well.

Many thanks, Carol.

Now pay attention. Miles Kinloch of Edinburgh has written a letter that he suggests might not be appropriate for Short Spot. BUT I'm putting it in immediately. This is because it contains information of considerable importance. Nearly all of us have a Spectrum. The vast majority of Spectrum users have a PLUS D drive controller. My guess is that this refers to over 80% of our readers (even though many of you now own a SAM as well). Many of us have also invested in Betados, and earlier in the year, I reported Miles' information on bugs in the system. He has now come up with a number of further fixes for Betados, and for G+DOS, too.

Miles writes that he can correct the faulty command codes, plus another recently discovered bug by pinching memory from the startup message when the system boots, a small price to pay. Having found the earlier bugs, Miles decided to test all the command codes in case there were others with problems. Good thing too, for he found another.

And a serious one, too. RST 8, DB 67 - the one used for CATting a disc has a bad flaw leading to crashes, DOS corruption and all sorts of nasties. In Betados, a buffer is set up in PLUS D RAM when a CAT is done, but this was, in fact, overlapping the CAT command code routine itself, causing it to self-destruct!

Miles writes that he doesn't tend to use these command codes much himself, but from the point of view of compatibility with a lot of commercial software, it is important for them all to work correctly. Indeed, these bugs are the true reason for so many programs not working with Betados, rather than any fundamental differences between Betados and G+DOS, which Miles used to think was the case. And to think, he writes, that all that was needed to put them right were a few simple changes...

For example, Hackers' Workbench. It worked on G+DOS 2a as well as the DISCiPLE, but not Betados - that is until now. Other examples are some of the Betterbytes programs, and PLUS D converted versions of Tasword 128. No doubt there will be many more. So he's also done a special 'Betatester' program to demonstrate all the known Betados bugs. Each line shows up a different problem, if you GOTO it with a direct command.

The other bug that Miles has discovered is also rather serious, and again has to do with the SAVE@ and LOAD@ commands in Betados. If there is a disc error during one of these commands, this can have unpredictable effects on some future disc operations. For instance, if you try to make a 48k or a 128k snapshot after a LOAD@ or a SAVE@ error, it will very often be corrupted. Even worse, it can possibly corrupt any other files on the disc, too. It also shows up with the RUN command then you use this to try and reboot - an 'END of file' message results.

Miles has traced this shambles to a PLUS D system variable at 15058/9 which these commands use, and which is not reset after an error, as it should have been. Miles has enclosed an annotated disassembly for me which is, unfortunately, too long and too pencilled to put in 'Short Spot', which shows quite clearly that the system variable is loaded with a value just before the ROM save-a-sector or load-a sector routine is called. In Betados, this is necessary to be able to cope with multi-sector loads and saves, whereas G+DOS doesn't have this facility, so doesn't use the variable. That's why you don't get the problem in G+DOS.

Miles also writes that fixing it was not as easy as it first seemed, because there is already an instruction there to put 15058/9 back to its normal value (275) after the ROM call, so at first he couldn't understand how this was not being done after an error. The answer lies in the devious way these ROM routines work: they only return to the address after the call when there has been no error, otherwise they alter the stack to return elsewhere - if called by a Basic command, to the error-handling routine in PLUS D ROM for printing the appropriate report. However, just because the problem lies in the ROM doesn't mean it can't be solved. Miles found a way round the problem by 'tricking' the ROM into returning to a new routine he made which first puts 15058/9 back to the proper value before jumping back into the ROM to print the appropriate error. Miles has made use of the error return address system variable at 8294/5 to get it to do this.

Incidentally, if you were to type CLEAR # after a SAVE@/LOAD@ error, that would reset the variable at 15058/9

NEW SC_WORD pro

Coming soon, **SC_WORD *pro*** the most unique professional word-processor for the Sam.
Sam word-processors are the same in one respect when you come to print out your document letter, you are restricted to the size and number of Fonts your software and printer uses.
SC_WORD *pro* is different, it doesn't use LPRINT text, but uses it's own built in bit image fonts, like the ones you are reading now which are smooth and non jagged the same quality you would get from Amiga and PC Computers, even large fonts which go up to 14mm high don't have blocky jagged bits like lprint characters do.
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Text can be surrounded in various borders and paper colour inside a box like the one below.

See the prototype or the finished version at a special launch price at the GLOUCESTER FORMAT show APRIL.

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SC_DTP £25.00 (Need Masterdos, £12 for a copy)
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and sorts things out, but this wouldn't be much help if the error occurred through the command code equivalents (codes 68 and 69) in a machine code program where you couldn't get into Basic.

Miles also mentions that he's fixed another problem, the fairly well-known one where the drive head position (track register) is stored only for one drive, which can sometimes lead to problems when two drives are in use. Well; fixed it, at least as far as the SAVE...TO... command is concerned: it can still occur when using LOAD@ or SAVE@ on different drives within the same program, though as the article 'IBU UPDATE' in Vol. 1, Nº 10, May 1988 suggests, the problem can be got round by reading the track register beforehand with IN 235. To implement the same thing with SAVE...TO..., though, needs a m/c routine to be added to the DOS, and as an extra bonus, this new routine also speeds up the copying process by about 15%, since the head doesn't keep getting 'lost' all the time, which also puts the drive stepping motor through its paces - the difference when it's sorted is quite audible! The problem, Miles found, is particularly troublesome with very long files which can't be copied in a single pass, like 128k snapshots and long opentype files. In fact, it's such a worthwhile improvement in return for very little cost in memory (the routine takes only 24 bytes) that it rather surprised Miles that Andy Wright didn't do it when he wrote Betados. Still, we can't think of everything...

As previously mentioned, the problem of altering Betados is that there is no spare memory, so these 24 bytes had to come from somewhere else. Miles was forced to take them from a couple of messages, so 'Insert SOURCE disc press SPACE' and 'Insert TARGET disc press SPACE' have been shortened to just 'Insert SOURCE disc' and 'Insert TARGET disc'. Incidentally, in Betados, you can press Enter as well as Space. Miles reckons this is a minimal sacrifice for such an improvement.

So here's a rather different and uprated Betafix program from the one we featured a little while ago, and as it's rather important, I'm printing it in full. This version has the appropriate POKEs to fix all the errors mentioned: just type it in and see.

```
10 REM   BETADOS BUG FIXES
20 REM     By M. Kinloch
30
40 CLEAR 4e4: LOAD d1"+sys Bet
   a"CODE 40960: RESTORE
50 FOR a=44149 TO 44160: READ
   d: POKE a,d: NEXT a: DATA 1
   91,40,9,254,223,40,5,205,23
   6,54,32,4: POKE 46828,0: PO
   KE 46831,201: REM Fixes OPE
   N # command statement end
60 FOR a=46403 TO 46410: READ
   d: POKE a,d: NEXT a: DATA 2
   15,130,28,247,200,215,153,3
   0: REM Fixes FORMAT dn,n co
   mmand to work on drive spec
   ified
70 FOR a=45175 TO 45236: READ
   d: POKE a,d: NEXT a: DATA 7
   8,111,46,32,111,102,32,70,1
   14,101,101,32,75,45,66,121,
   116,101,115,32,61,160,205,2
   15,34,210,124,4,205,220,2,1
   95,72,24,237,115,102,32,205
   ,178,50,24,7,237,115,102,32
   ,205,173,50,195,220,2,205,2
   ,7,58,16,62,195,181,36: REM
    Fixes command codes 67, 68
    and 69, also sorts SAVE @/
   LOAD @ error bug
80 POKE 41726,172: POKE 41727,
   48: POKE 45729,166: POKE 45
   730,48: POKE 45737,157: POK
   E 45738,48: POKE 45446,220:
    POKE 45447,2: POKE 43178,1
   53: POKE 43179,48: POKE 431
   81,141: POKE 43182,48: POKE
    43267,162: POKE 43268,48:
   POKE 43270,161: POKE 43271,
   48: POKE 45749,246: POKE 45
   750,50: POKE 45789,42: POKE
    45790,210: POKE 45791,58:
   POKE 45798,204: POKE 45799,
```

```
220: POKE 45600,12: POKE 47
627,201: POKE 47628,0: POKE
 47629,0: REM Miscellaneous
 POKEs to call new patches
etc.
 90 FOR a=45812 TO 45818: READ
 d: POKE a,d: NEXT a: DATA 1
67,201,211,239,195,246,55:
REM Clear carry flag after
successful SAVE @/LOAD @, a
lso make SAVE @ command spi
ns proper drive before savi
ng
100 FOR a=45250 TO 45318: READ
 d: POKE a,d: NEXT a: DATA 2
2,1,7,73,110,115,101,114,11
6,32,83,79,85,82,67,69,32,1
00,105,115,227,205,138,23,2
2,1,7,73,110,115,101,114,11
6,32,84,65,82,71,69,84,32,1
00,105,115,227,58,26,62,184
,202,212,35,219,235,50,210,
35,58,211,35,211,235,58,210
,35,50,211,35,201: POKE 452
46,24: FOR a=41935 TO 41939
: READ d: POKE a,d: NEXT a:
 DATA 195,239,48,0,0: REM I
ncreases speed and reliabil
ity of SAVE...TO... when co
pying between 2 drives
110 PRINT "Press any key to re-
save Betados": PAUSE 0
120 SAVE d1"+sys Beta"CODE 4096
0,6650: STOP
```

Next, the Betatester program, to check your version (it's rather fun, checking for bugs in someone else's work, especially with the examples given). And there's even a line to test for the new bug mentioned earlier. It creates an error by using LOAD@ to load a non-existent sector (the error is masked from Basic with POKE 23728), and the value at 15058/9 is then printed using the shadow PEEK function, and will only be correct (275) once the bug is fixed.

```
 10 REM  TEST ROUTINES TO SHOW
 UP BUGS IN BETADOS
 20 DEF FN s(x)=USR 8
 30 OPEN #4;d1"xxx": STOP : REM
    This line will only pass
 syntax when OPEN # bug is f
 ixed.
 40 CLEAR 49999: RESTORE 40: FO
 R a=50000 TO 50009: READ d:
 POKE a,d: NEXT a: DATA 221
 ,33,56,199,207,51,207,67,20
 7,255: FOR a=51000 TO 51023
 : READ d: POKE a,d: NEXT a:
 DATA 1,0,2,68,0,42,32,32,3
 2,32,32,32,32,32,32,4,0,0,0
 ,0,0,0,0,0: RANDOMIZE USR 5
 0000: STOP : REM This tests
 the command code RST 8 DB
 67 (CATs a disc).
 50 CLEAR 49999: RESTORE 50: FO
 R a=60000 TO 60030: READ d:
 POKE a,d: NEXT a: RANDOMIZ
 E USR 60000: DATA 62,1,17,1
 ,200,221,33,72,238,207,68,2
 08,62,2,205,1,22,17,122,234
 ,1,5,0,195,60,32,69,82,82,7
 9,82: POKE @6866,275: STOP
 : REM This tests the comman
 d code RST 8 DB 68 (READS a
  given sector).  In this de
 mo, sector 200/1 is loaded
 to 61000.
 60 CLEAR 49999: RESTORE 60: FO
 R a=60000 TO 60030: READ d:
 POKE a,d: NEXT a: RANDOMIZ
 E USR 60000: DATA 62,1,17,1
 ,200,221,33,72,238,207,69,2
 08,62,2,205,1,22,17,122,234
 ,1,5,0,195,60,32,69,82,82,7
 9,82: POKE @6866,275: STOP
 : REM This tests the comman
 d code RST 8 DB 69 (WRITES
 a given sector) In this dem
 o, sector 200/1 is saved fr
 om 61000. WARNING - DON'T T
 RY THIS ON AN IMPORTANT DIS
 C!!!
 70 CLS : POKE @7642,1: OUT 239
 ,1: PRINT "Drive 1 is now t
 he current driveRemove any
 disc which is in it  and pu
 t an UNIMPORTANT disc intod
 rive 2, then press any key.
  If the 'SAVE @' bug has be
 en fixed,sector 200/1 will
 now be saved  on Drive 2 fr
 om address 61000.Ifthe bug
 is not fixed, the drive mot
 or will just spin indefinit
 e-ly, and the sector will n
 ot be  saved unless a disc
 is inserted in Drive 1 firs
 t.": PAUSE 0: SAVE @2,200,1
 ,61000: STOP
 80 CLS : POKE @7642,1: OUT 239
 ,1: PRINT "Drive 1 is now t
 he current driveInsert a bl
 ank disc in Drive 2  and an
  unimportant or protected d
 isc in Drive 1. Betados wil
 l  now try to format the d
 isc in  Drive 2 for 100 fi
 les, using thespecial comma
 nd FORMAT d2,5."''"However,
  if the bug in this  com
 mand has not been fixed, it
   is Drive 1 which will be
 formatt-ed instead, since t
 hat is the  current drive."
 : PAUSE 0: FORMAT d2,5: STO
 P
 90 CLS : PRINT "Please wait.":
  POKE 23728,1: LOAD @1,1,11
 ,16384: POKE 23728,0: LET a
 =FN s(15058)+256*FN s(15059
 ): CLS : PRINT "A LOAD @ er
 ror has occurred by  delibe
 rately trying to load a  n
 on-existent sector."''"The
 internal system variable at
  15058/9 is now ";a;", whic
 h is"'("not " AND a<>275);"
 the correct value.": PRINT
 '"Now try to snapshot this
 programon an unimportant di
 sc, and the chances are it
 will not work  properly,
 possibly corrupting  any o
 ther files which are on the
 disc." AND a<>275: REM LOAD
  @/SAVE @ error bug
100 STOP
```

Finally, here are a couple of patches that Miles has made for G+DOS. The routine to sort out the SAVE...TO... problem with 2 drives can also be implemented in it, so he's added POKEs to the G+DOS fixer program to do this. Another thing is a routine to spin the drive for about a second, the way Betados does before a SAVE@, only this goes one step further and does it on LOAD@ too. Miles mentions that although he never seems to get this problem for some reason, others do, and will therefore probably appreciate this feature. Both new routines will work with DOS routines such as PLUS D Poker, the snapshot/key 0 patch, and so on, as they don't use spare RAM at the end, but instead overwrite some redundant code in the snapshot routine. Incidentally, Betados even uses that, too, so Miles couldn't use that area for the Betados patches, either.

```
 10 REM ENHANCEMENTS/BUG FIXES
 20 REM      FOR G+DOS 2a
 30 REM   By Miles Kinloch
 40 REM
 50 FOR a=3189 TO 3200: READ d:
  POKE @a,d: NEXT a: DATA 19
 1,40,9,254,223,40,5,0,0,0,2
 4,4: REM Fixes OPEN # comma
 nd statement end
 60 FOR a=585 TO 597: READ d: P
 OKE @a,d: NEXT a: POKE @406
 0,@777: POKE @4091,@777: DA
 TA 205,5,7,211,239,14,192,2
 05,247,6,195,230,6: REM @pi
 ns the drive motor for abou
 t a second before a LOAD @
 or SAVE @
 70 FOR a=598 TO 621: READ d: P
 OKE @a,d: NEXT a: POKE @975
 ,195: POKE @976,@790: POKE
 @978,0: POKE @979,0: DATA 5
 8,26,62,184,202,212,35,219,
 235,50,210,35,58,211,35,211
 ,235,58,210,35,50,211,35,20
 1: REM Keeps track of drive
  head positions when using
 SAVE...TO... to copy betwee
 n different drives, improvi
 ng speed and reliability
 80 PRINT "Press any key to re-
 save G+DOS": PAUSE 0
 90 SAVE d1"+SYS 2a"CODE @192,6
 656: STOP
100 OPEN #4;d1"xxx": REM This l
 ine will only pass syntax w
 hen OPEN # bug is fixed.
```

Many thanks, Miles. Guess that compensates for the recent dearth of Spectrum stuff.

And that's all for this month. Please keep all your snippets coming to me; without them I can't put a column together. Please send them to:-

John Wase,
Green Leys Cottage,
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Pershore,
Worcs,
WR10 2LX.

See you next month.

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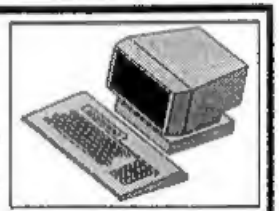

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DRiVING FILE MANAGER

By:- Carol Brooksbank.

The handbook for Revelation's splendid new Sam WIMP system, DRiVER, gives information about using the program to load existing software, even when DRiVER itself must be switched out to allow the other program to run. But how can you load and run a program, and, say, let DRiVER's NOTEPAD access information from the other program? It is not as difficult as it sounds.

In this article I am taking you step-by-step through installing BETASOFT's FILE MANAGER filing program on your DRiVER disc, and allowing it to interact with NOTEPAD.

I have to admit that I have only tried this on a 512K Sam with a 1meg. expansion fitted. If you have a twin drive machine, it should work on any Sam, expanded or not - provided you keep a blank disc in drive two to do the work of the ramdisc. On an unexpanded single drive 512K Sam, you can use a smaller ramdisc, try `FORMAT "d3",4,30` It will limit the size of files you can use, but if you are already using FILE MANAGER on a single drive unexpanded 512K Sam, you will have met the limitation and your files will fit that size of ramdisc anyway. There is no hope of getting this to work with FILE MANAGER on an unexpanded single drive 256K machine, but you might find it possible to apply the principle to other programs.

Begin by putting your working copy of DRiVER in drive 1, making sure that it is not write protected. Then change the name of the autoloading code file:-

```
RENAME"Auto10.cod"TO"load10.cod"
```

(if you have a later edition of DRiVER the number in the filename may not be 10. Use whatever number your "Auto..." file has.)

Now write a new Basic loading program for DRiVER:-

```
10 FORMAT "d3",4,160 : REM ("
   d3",4,30 if using an unexp
   anded 512K Sam. Omit the 1
   ine if using twin drives)
20 LPRINT CLEAR 16384
30 DEF KEYCODE 199, CHR$ 208
50 LOAD "load10.cod"CODE : RE
   M (see note above if using
    later edition of DRiVER)
60 NEW
```

Lines 20-60 are fully explained in the DRiVER handbook, page 36.

Save this program to your working DRiVER disc: `SAVE "auto" LINE 10`

From now on, if you have used line 10, whenever you load DRiVER, you will already have a ramdisc formatted.

Next, do a NEW and type in this program which will load FILE MANAGER:-

```
10 OPEN TO 20:CLEAR 327679 :
   REM (with an unexpanded SA
   M you may not be able to o
   pen so many pages. Use OPE
   N to 10:CLEAR 163839)
20 POKE DVAR 0,0
30 BORDER 1
40 DIR="filer"
50 LOAD "font"CODE 20880
60 DEVICE d1: LOAD "fileprog"
```

Save this to your DRiVER disc with:-

```
SAVE "fiload"LINE 10
```

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Now, make a directory for your FILE MANAGER files: `OPEN DIR "filer"`

Do a NEW to clear "fiload" and type in the short program which will return from FILE MANAGER to DRiVER:-

```
10 CLEAR 16384*4-1:CLOSE 16 ( the number of pages closed must be 4 less than the number you opened in line 10 of "fiload")
20 DIR=\:LOAD "auto" LINE 20
```

Line 20 will exit from the "filer" directory, and reload DRiVER via the auto-loading Basic program we wrote earlier, but we want to keep the ramdisc intact, because we shall have left files to be used by NOTEPAD on it. The command `LOAD "auto" LINE 20` will make "auto" miss out the line which formats the ramdisc. Save this program:-

```
SAVE "D1:\filer\exit" LINE 10
```

It will be saved into the 'filer' directory on your DRiVER disc. Now, copy the 'font' file from your FILE MANAGER disc, also into the 'filer' directory:-

```
COPY "D1:font"TO"D1:\filer\font"
```

Now we have to modify FILE MANAGER. Do a NEW to clear the Basic from memory, and then enter, as a direct command:-

```
OPEN TO 20: CLEAR 327679
```

(if you are using an unexpanded machine this may give an error message. If so, use `OPEN TO 10: CLEAR 163839`

Put your FILE MANAGER disc in drive 1 and:-

```
LOAD "FILEPROG" line 65000
```

This will load the program without letting it auto-run.

We need to free up some space in the program to make room for the modifications which will let NOTEPAD have access to FILE MANAGER information. Since printing can be done via NOTEPAD, we can delete all FILE MANAGER's printing routines, so DELETE the following blocks of lines: 5000 to 5900, 13580 to 15210, 16020 to 16720, 24830 to 25500, 27580 to 28540. Then edit the following lines to read:-

```
 40 OPEN BLOCKS 3
 60 CLOSE #4:CLOSE #5:MODE 4:DIM C$(250):PALETTE:PALETTE 15,127: PALETTE 0,17: BORDER 0:CLS
120 PRINT:PRINT "5) MAKE NOTEPAD FILE"
140 PRINT: PRINT: PRINT "9) EXIT TO BASIC/DRiVER": PRINT : PRINT " ";: PRINT PAPER 6; PEN 0; "ENTER OPTION NU
```

Insert the following new lines:-

```
5010 notepad
5020 GOTO menu1
9002 CLS:PRINT "1) EXIT TO BASIC": PRINT: PRINT "2)EXIT TO DRiVER": GET opt
9004 ON opt: GOTO 9010: GOTO 9100
9100 DEVICE D1: DIR="\filer": LOAD "exit"
```

These lines alter the main menu, so that the option to make a NOTEPAD file is included and called when selected, and alter the EXIT TO BASIC option to allow the choice of a simple exit to Basic as before, or a return to DRiVER.

Now all we have to do is write the procedure which will make a code file from a FILE MANAGER search or sort list, and store it on the ramdisc. FILE MANAGER's files are OPENTYPE, and NOTEPAD needs pure ASCII code files, so the listing below is the Basic which will do the conversion.

```
13580 DEF PROC notepad
13590 LOCAL Q,R,X,Y,conv$,count,npfile,num,order,store,tod o$,Y$,Z$
13600 MODE 3: PALETTE 0,17: PAPER 0: PEN 3: CLS
13610 PRINT "GIVE THE NAME/NUMBER OF THE SEARCH OR SORT LIST TO BE CONVERTED IN THE FORM": PRINT : PRINT "SLIS
```

```
      T1    SORT10    etc."
13620 INPUT "LIST?";conv$
13630 DEVICE D3: LOAD conv$ DATA
       order()
13640 LET count=LENGTH(1,order()
      ),store=327680
13650 CLS : INPUT "DO YOU WISH T
      O INCLUDE ALL FIELDS? (Y/N
      )";Y$: LET Y$=SHIFT$(Y$,1)
13660 IF Y$="N" THEN GOTO somefi
      elds
13670 fetchfields
13680 DIM todo$(numfields)
13690 FOR X=1 TO numfields
13700 LET todo$(X)=B$(X,1)
13710 NEXT X
13720 GOTO startconv
13730 LABEL somefields
13740 CLS :dispfields: INPUT "HO
      W MANY FIELDS TO INCLUDE?"
      ;num
13750 POKE SVAR 618,8: INPUT "EN
      TER THE FIELD LETTERS IN T
      HE ORDER IN WHICH THEY ARE
       TO BE COVERTED - (as ABCF
      DE etc.)"; LINE todo$
13760 IF LEN todo$ <>num THEN CL
      S : PRINT "YOU HAVE SPECIF
      IED ";num;" FIELDS": PRINT
       "BUT HAVE LISTED ";LEN to
      do$:presskey: GOTO somefie
      lds
13770 LABEL startconv
13780 CLS : PRINT "MAKING THE FI
      LE - PLEASE WAIT"
13790 OPEN #4;filename$ RND
13800 FOR R=1 TO count
13810 FOR X=1 TO LEN todo$
13820 POINT#4;order(R)
13830 INPUT #4;Z$
13840 IF Z$(1)<>todo$(X) THEN GO
      TO 13830
13850 LET Z$=Z$(3 TO LEN Z$-1)+C
      HR$ 13
13860 POKE store,Z$: LET store=s
      tore+LEN Z$
13870 NEXT X
13880 POKE store,13: LET store=s
      tore+1
13890 NEXT R
13900 CLOSE #4
13910 DEVICE d3
13920 SAVE "npfile" CODE 327680,
      store-327680
13930 CLS : PRINT "THE FILE IS O
      N THE RAMDISC UNDER THE NA
      ME ""npfile""": PRINT "YOU
       SHOULD RENAME IT BEFORE C
      ONVERTING ANY OTHER LISTS"
13940 POKE SVAR 618,8: INPUT "DO
       YOU WISH TO RENAME THE FI
      LE? (Y/N)";Y$
13950 IF Y$="N" THEN GOTO 13970
13960 INPUT "NEW NAME (MAXIMUM 1
      0 LETTERS)";nam$: IF LEN n
      am$>10 THEN GOTO 13950: EL
      SE : DEVICE D3: RENAME "np
      file" TO nam$
13970 END PROC
```

Lines 13610 - 13630 prompt for the full name/number of the list to be copied. The file and the list to be converted must already be on the ramdisc. You can copy existing search or sort lists from floppies, or use the SEARCH/SORT options to prepare new ones. The list you specify will be loaded into the program

Line 13640 sets up a counter, and the address to which the converted code will be poked which should be 1 above the CLEAR address used in line 10 of 'fiload'.

Line 13650 gives you the choice of converting all the fields in each record in the list, or of converting just some of them. You might, for instance, only want names and addresses if you are writing letters or printing labels. If you decide to use all the fields, an array containing all the field letters is set up by lines 13670 - 13710, and 13720 jumps forward to start the conversion. If you only want some of the fields, lines 13730 - 13760 display the field names, ask you for the total number of fields to be used, and to input the string of field letters, in the order in which you want them to appear in NOTEPAD. If the length of your list of field letters differs from the number of fields you have specified, the program gives you an error message and makes you give them again.

Now lines 13770 to 13900 read in the required fields for every record in the list and store the ASCII codes for the information in memory. At line 13850 each field is read in, the first two characters (Field identification letter and colon) and the last (end of field marker) are stripped off, and a CHR$ 13 is added to the end, so that each field will start a new line when displayed in NOTEPAD. Line 13860 stores the string in memory and updates the 'store' address ready for the next one. After each record is converted, line 13880 stores another CHR$ 13, so that a blank line will be left between records in NOTEPAD.

Lines 13900 - 13920 close the file and save the block of code to the ramdisc under the filename "npfile". If you are using drive 2 instead of the ramdisc, alter line 13910 to: `13910 DEVICE d2`

The last few lines give you the option of renaming the file if you want to convert any more lists. Change the device number in line 13960 if you are using drive two.

Finally, use CLEAR to remove any unwanted variables and save the whole program to your DRiVER disc - in the 'filer' directory:-

```
SAVE "D1:\filer\FILEPROG" LINE 5
```

You must follow the instructions in DRiVER's handbook for making an application bootstrap (p.20). You will need to choose or design a suitable icon, which you must copy out of any subdirectory file into the main (root) directory. When you use the 'CREATE BOOTSTRAP' option, give the bootstrap file and the icon whatever names you think appropriate, but the file to be included is 'fiload'. Put the switch on which indicates that loading the application is to close DRiVER.

Now, when you load DRiVER your FILE MANAGER icon will appear among the other application icons. When you click on it, FILE MANAGER will be loaded and you will be able to use it quite normally, except that you can no longer print from it. But now you can save the information from selected or sorted records to the ramdisc. If you want to use all the records in a file, use a search method which will select every record, and then convert that search list, or sort the whole file and use the sort list.

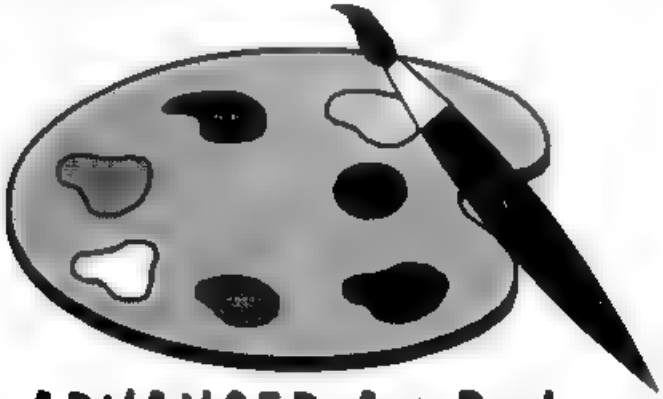
When you use the former 'EXIT TO BASIC' option on the main menu, you will now be offered the option of 'EXIT TO DRIVER' as well. When you select that, you will make a perfectly normal return to DRiVER, except that any files you were using under FILE MANAGER will still be on the ramdisc, including any conversions you made.

When you load a converted file into NOTEPAD you will get a message saying it is not a NOTEPAD file, and offering to convert it from 64-col. format. Reply 'CANCEL' to that, because the files are fully compatible with NOTEPAD. You can now make whatever use of the files you wish - using the 'clipboard' facility to transfer the information into other documents.

I hope that this has given you some ideas about getting other programs to interact with DRiVER and NOTEPAD. Shorter programs than FILE MANAGER will be even easier - you will not need to open so many pages for them and you should not need to delete any lines. Programs which keep data in ASCII code files already will need no conversion, and you will be able to load their output straight into NOTEPAD from floppy disc.

Hopefully we shall soon see new software which runs fully under DRiVER coming onto the market. In the meantime quite a number of our favourite Sam programs can be made to live happily with DRiVER, and now you know how to make it happen.

SAMPaint



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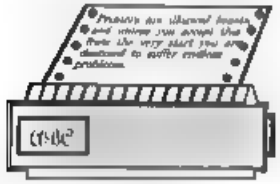

PRINTERS What Are The?

Part 2.

By:- Phillip Jenner.

Welcome to the second part of our look at printers. This month I want to cover modern printers and some of the 'running costs' of each type of printer.

Laser Printers.

All the printers we have talked about last time come under the general heading of 'impact' printers because they rely on something impacting the printer ribbon against the paper in order to make their mark.

A laser printer works on a totally different principle, more akin to a photocopier than a typewriter. A laser printer works by scanning a laser beam at high speed across the face of an electrostatically charged drum which is slowly rotating. The laser is switched on and off where appropriate so that it effectively draws a bit-mapped image onto the drum. Where the laser beam hits the drum the electrostatic charge escapes to earth, leaving an electrostatic representation of the image. Further round the drum is a roller coated with toner, an incredibly fine black powder. The toner has a similar charge to the drum which means it only adheres where the drum has been discharged. Further around still and the toner is transferred to the paper.

Another major difference is the amount of memory fitted to the printer. Even the cheapest dot matrix printers now have buffer memory, even if only a few kilobytes, capable of storing a few thousand characters so that the computer can output text at high speeds without danger of any of the characters getting lost. With a laser printer the memory is used to store a bit map of the image ready for the laser to draw it onto the drum, and it is quite common for the printer to have a buffer of 512K, 1Meg or even more, making it capable of storing a good portion of an A4 page or indeed the whole thing at resolutions of 300 dpi (dots per inch) or better

An impact printer is sometimes called a 'line' printer, because it is designed to print one line of text at a time. A laser printer can similarly be called a 'page' printer because it is designed to print a page at a time, breaking away from the line-by-line look of traditional computer printout.

This is way beyond the bounds of ASCII or even Epson's ESC/P. Indeed it calls for a new way of describing the whole page to the printer, or a 'page description language' often referred to as a PDL. The most commonly used page description language these days is PostScript™ developed by Adobe Systems and first used commercially in the Apple LaserWriter. PostScript is a true computer language, so much so that the modern PostScript printer contains a micro-processor which is often more powerful than the processor in the average computer.

PostScript is expensive though, and

thankfully there is an alternative. Just as Epson dominates the dot matrix market, Hewlett Packard dominates the laser market with its LaserJet™ range of printers. These use a rather simpler page description language called PCL (standing for Printer Command Language).

Now you might ask yourself "Why the hell is he going on about laser printers in a magazine like ***FORMAT***? They are far too expensive to use with the Spectrum or Sam". Well that is no longer true, the price of laser printers is dropping very fast and you can now pick up one for under £500. But more of interest here is that the facilities offered on laser printers are expanding fast and so are the demands being set by software running on IBM type computers. The result is that large numbers of second hand printers are appearing on the market. While I would not recommend buying any second hand printer without testing it with your computer, there are some real bargains out there if you look. Often because they are older models they tend to have Epson or IBM emulation built in, so even without complicated driving software they can still be used with our sort of machine.

Inkjets and Colour Printing.

Laser printers are capable of very high quality and are very fast, but they tend also to be comparatively expensive if purchased new

A more recent alternative is the inkjet or bubble jet printer, which combines some of the characteristics of the dot matrix printer and the laser.

The inkjet printer forms its image by squirting a controlled amount of ink onto the paper from tiny nozzles mounted in a print head, much like a dot matrix printer - in point of fact they are still called dot matrix printers and you still talk of, say, a 48 'pin' inkjet.

The bubble jet printer is a refinement of this technique, where each nozzle is driven by a heating coil which effectively boils the ink and forces a tiny bubble against the paper

Inkjet printers tend not to be as fast as the highest speed dot matrix printers, but offer a far higher quality - often the same 300 by 300 dpi that many lasers produce. They are considerably slower than a laser printer but correspondingly cheaper and, with the right sort of paper, capable of almost as high a quality. I happen to know that for several years ***FORMAT*** was typeset on an inkjet printer.

However, where inkjets particularly score is colour printing. By using different colour inks, and precisely controlling the flow of ink to the paper, an inkjet printer can recreate a wide range of colours on the paper

The HP Deskjet range of printers contains very affordable colour printers that produce first rate images - provided you can write the software to drive them.

Printer Purchasing Questions.

OK, so now you know a bit about each type of printer. But, before you purchase a printer there are a few basic questions which you should ask yourself

Output Quality? Identify the task for which the printer is to be used:- rough work, formal letters, mailing labels, large spreadsheets, multi-part forms, promotional documentation. The quality of the final result should be your guide, particularly if the intention is to output graphics.

Running Costs? In addition to the initial purchase price of the printer, there are the day to day running expenses which must also be considered

With a dot-matrix printer the running costs are quite low: the occasional ribbon (some of which can now be re-inked) listing paper and, rarely, a new print head. A good tip here is to try, whenever possible, to print in draft mode. Not only is it quicker but both the ribbon and print head will have a prolonged life.

With an ink jet printer the greatest expense is in replacing the special cartridges, although there are a few advertisements in the computer press which advertise the ability to re-fill them. You should also consider the possibility of any special paper that might be needed to get the best results. Most work quite well with standard photocopier paper but all will perform best if a proper inkjet paper is used.

With a laser printer, there are perhaps two major items of expenditure: replacing the toner and the light sensitive drum. The latter can be extremely expensive, one laser I tried to repair for a local company last year was scrapped because a new drup was only £80 cheaper than a whole new printer. Before purchasing a laser printer, find out the costs of these items and if you are tied into a particular supplier or can shop around for third party spares. Another point is that of 'life' of the drum. how many pages is it going to last?

Hidden Costs? Part of owning a printer is the time that needs to to be devoted to troubleshooting printing problems, these are often neglected but can have a real effect if the printer is constantly needing the services of a technical support department. If you do not understand printers then go for a common make and model of dot matrix printer - because then the expertise is readily available to you from mags like ***FORMAT***

There is by the way other subtle cost associated with ownership of a laser printer. Because these machines are capable of such high quality output, time is often wasted whilst documents are made to look good, occasionally, without necessity.

Life? Most modern printers will last a good few years, in fact you are more likely to upgrade your computer first. However, it is no good buying a cheap printer now if you will need the extra quality and speed of a more expensive printer in just 6 months time. Think hard. Make your choice. Then think about it for a few more days.

Second Hand? Yes you can get very good bargains on the second hand market - but make sure you test them first - and not just the self test mode either because all that really tests is the print-head. But NEVER - EVER buy a printer without the manual, it is like buying a car without an engine - you just wont get anywhere fast.

So, good luck and may your printouts always be clear.

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The HELP PAGE

Edited By:- Ray Bray.

As there seems to be a dearth of problems this month I will expand on the one substantial question received as it will probably be of interest to many other readers. However, before doing so, we have some more information for John Foster of Burton-on-Trent concerning the problem he experienced with screen dumps using a Panasonic printer, (the March Help Page refers). M. McMahon writes that he had similar problems with a Panasonic KX-P 1124 printer using the DISCiPLE, and he got round it by adding another 27 in front of the control codes, so that the code became 27,27,75,n1,n2, d1,d2,d3,etc. I hope that does the trick for you John, and thank you for the tip M. McMahon (sorry! no first name given - I wish writers would).

Now for the main question for this month, which comes from Bernadette Dowsland of Humberside. Bernadette says that she has been using the 128K Spectrum for some time writing Basic programs within the 48K of memory directly available. She now wishes to make full use of the additional memory of the 128 but despite scouring every copy of ***FORMAT***, she has not seen any programs (either in BASIC or machine code), which use the paging system to access additional pages of memory. There is of course a good reason for this, which is that a program which needed to make use of more than the initial 48K of memory would probably be too long to publish in ***FORMAT***!

However, Bernadette's question does prompt a more fundamental point in that, as far as I can see, even the basic principles involved in making use of the extra memory have never been covered, apart from two articles by Shimon Young in 1989 which covered the use of the second screen facility on the 128, and Stephen Barnes +2A/+3 Soft ROM article in the November '92 issue which also touched on the subject. True, the handbook gives most of the information needed but it does need some sorting out!

Now that Kevin is no longer writing for us we don't have an expert on the 128 series, but I felt that if I gave a few simple pointers on this subject then perhaps someone with more detailed knowledge than I could write to us and expand on the topic.

To simplify things we will concentrate on the use of RAM and ignore what happens to the ROM. There are eight 16K pages of RAM nominally available to the user, numbered 0 to 7. However, page 0, 2 and 5 normally reside in the addressable 48K of RAM and, if you are using disc, then page 7 is used by the disc operating system, so for our purposes we will ignore these pages. This leaves pages 1,3,4 and 6 which can be readily used by programmers in the following ways:-

1. Using the RAMDISC to hold extended data files.
2. Using RAMDISC to hold extensions to the BASIC program.
3. Holding machine code routines which can be paged in when required.
4. Holding data in ASCII or code form

which can be paged in when required.

5. Making use of the second screen facility.

The first two options are really self-explanatory. If a data file is required which needs to be much larger than can be held in the working memory, then the file can be segmented into smaller arrays which can be held in RAMDISC and the appropriate segment loaded when required. The file segments must be based on identically sized arrays using the same array letter. Care will have to be taken over how the data is arranged as it will not be possible to have more than one segment in memory at one time. With reference to the second option above, the ability to write BASIC programs longer than 48K can be very useful and is fairly simple providing care is taken over how the program is arranged. The general idea is to split the program up into several self contained sub-routines, some of which are held in RAMDISC and MERGEd with the main program and called with GOSUB when required. The main points to watch are:

1. The routines are line numbered to MERGE at the end of the main program

2. That sufficient room is left for all the variables and arrays required by the program.

3 The MERGEd routines do not call other routines not already in memory and they must always return to the main program before another routine is MERGEd.

4. Although it is possible to SAVE and MERGE a routine with its own variables area this raises certain problems and it is better to avoid it if at all possible.

So much for using RAMDISC. The use of the extended memory by machine code is not much more complicated. The first thing to remember is that the additional pages are "paged" into the top 16K of the working memory, therefore the routines which call the code programs/data must be located below address 49152, and any RETURN should be made to below this address. The paging is controlled by a special hardware switch at port 32765 and, for some purposes, by another switch at port 8189. For this simple explanation we will ignore the latter. Fortunately the paging can be carried out in BASIC via the variable BANKM, by POKEing 23388,(16 + n) where 'n' is the page number

If it is required to locate a m/c routine in Page 3 and access it from BASIC, all that is necessary is to carry out the following steps:-

1. Execute a CLEAR 49151 and load the m/c program. NOTE: The m/c program must have either been written specifically to run above address 49151 or be a relocatable program.
2. Execute a POKE 23388,(16+3): PAUSE 1: LOAD "program" CODE. This pages-in Page 3, loads your code to that page and then pages Page 0 back in again. NOTE: When a BASIC or m/c program is stopped, the machine returns to the Editor so Page 0 is automatically paged back in. You cannot therefore examine extended pages with direct input commands unless a string of commands is entered prefixed by the POKE 23388 command. The PAUSE is necessary to ensure that an interrupt occurs so that the paging-in port is updated before the LOAD takes place.
3. To access the code, use POKE 23388,19: PAUSE 1: RANDOMIZE USR address, (or any of the other USR commands).
4. Following the return from the m/c routine a POKE 23388,16 should be executed in order to revert to standard memory configuration

The above shows how to access the code from BASIC but to do the same from another m/c program (below address 49152) the following short routine has to be included in the main program to page the memory in, call the routine and page the memory out again:-

```
PAGEIN: DI
        LD A,(23388)
        OR 3
        LD (23388),A ;Set the va
         riable BANKM to page 3.

        LD BC,32765
        OUT (C),A ;Set the switc
            hing port to page 3.

        EI
        ;
        CALL address ;Call the p
                aged-in routine.

        ;
PAGEOUT:DI
        LD A,(23388)
        AND 248
        LD (23388),A ;Set BANKM
                        to page 0.
        LD BC,32765
        OUT (C),A ;Set switching
                    port to page 0.
        EI
```

Finally, there is a limitation associated with the use of Page1 which is due to the fact that the RAMDISC normally uses a minimum of 4K of that page and the DOS locates a cache in the page as a sector store. If RAMDISC is not being used then this can be ignored but provision has to be made for the DOS cache otherwise the operation of the DOS might be slowed. The current location of the cache and RAMDISC can be found using DOS routine GET1346, and both can be altered or relocated using routine SET1364. The handbook gives details of these routines and it is not intended to cover them now.

I trust that this short explanation will give you enough basic information to get started and, hopefully, someone else will come up with a more comprehensive article on making the most of all that extra memory in the Spectrum 128.

ANSWER WANTED

Does anyone know whether SAMPAINT is compatible with a 512K SAM fitted with a series 2 ROM?

That's all we have for this month. Please keep sending your problems/answers to the following addresses:-

Anything SAM or General Purpose (and, for now, anything Spectrum):-

Ray Bray (Format Help Page),
'Elmsleigh',
4, Tidworth Road,
Porton,
Salisbury,
Wiltshire, SP4 0NG.

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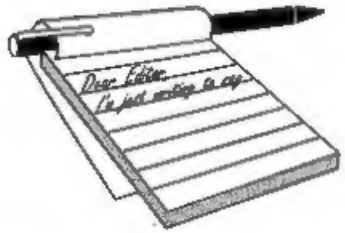

YOUR LETTERS

Dear Editor,

I have sent payment for a ticket for the show on April 30th. At the same time I would like to offer a lift to someone from the Watford/Hatfield area in Hertfordshire. I could take up to three people. If anyone is interested then could they please ring me at work on 081-950-1804 (ask for David).

Yours sincerely, D.C.Brant.

Thanks David. Look forward to seeing you on the day. ***Ed.***

Dear Editor,

I enclose herein my subscription renewal form. I do not wish to renew my subscription. I am sorry to have to take this decision, but, to be honest, ***FORMAT*** does not really cover the areas of Spectrum computing that interest me. Whilst Bob continues his stand against including games coverage, and doesn't seem to have furthered his interest in a games based title from Format Publications, I'm afraid that your magazine doesn't hold my attention.

I have no axe to grind with you or Bob, but I hope that Bob will rethink his no games stance at some point in the future. Both the Spectrum & SAM are computers needing as much support as possible IN ALL AREAS. I would say that many more Spectrum owners use their machines for games than anything else, so it seems somewhat amiss to ignore this fact.

Bob's argument against Spectrum PD in the April 1994 editorial would be fine if the Spectrum still had a healthy commercial software base. It hasn't, so PD is probably the only way that authors are going to get their work published now. So, I feel that he is also wrong in this respect as well.

As I stated before, I have no personal grudge against you or Bob, but I cannot enjoy ***FORMAT*** whilst Bob's views are so much against my own.

Anyway, this is moving away from subscriptions, so I will close with the wish that you have every success in the future - any support for the Spectrum & SAM has to be welcomed in these console-blighted times.

Yours sincerely, Jon Rose.

The ***Games Format*** is still on the back burner. Several reasons. First, as you point out, there is very little commercial software now being released so there would be little in the way of advertising to pay for the new mag. One of my stands against PD software is that some of it could be sold in a commercial way that would then help the Spectrum industry to recover some of its past glory.

The second reason is the lack of an editor for the mag. ***FORMAT*** itself takes up a lot of my time so, if ***Games Format*** is to be a success, it needs an editor of its own. That is a problem, and one to which I have yet to find a solution.

Still, all that to one side for the

moment, the only things we don't print in ***FORMAT*** is games reviews. News, hints and tips, the odd pokes, games writing and hacking - all have appeared in ***FORMAT*** over the years and will again if someone writes the articles for us to publish.

Oh, and by the way, Revelation are crying out for Spectrum software to publish so if there are any programmers out there who want to see their work published then there is still at least one commercial outlet left. ***Ed.***

Dear Editor,

Well let's kick off with a plea. Sadly, my treasured ZX80 has finally given up the ghost - I thought it was the UHF modulator, but having obtained one with some difficulty and fitted it with even more difficulty (my poor eyesight not being as good as it once was!), it still refused to work. And that's my plea - to ask through the ***FORMAT*** columns if someone has a ZX80 in good condition and working, for sale. I am not sure whether this request is suitable for your small ads page under the heading of 'Wanted' or perhaps squeezed in your letters page. If its the latter then I had better write some more!

I eagerly look forward to the little A5 brown envelope popping through my letterbox each month. And the magazine inside is not bad either!

Seriously though I do look forward to the monthly update on the Spectrum/ SAM Coupé scene and the quality of the content is so high - I particularly liked the letter from Prince.

I thought the Fair at Gloucester was a great occasion and it was good to meet so many people. The balance was just right - serious enthusiasts, good products, friendly central venue. Now eagerly look forward to the next one.

Yours sincerely, Jack Gibbons.

Anyone out there with a ZX80 they don't want anymore? Contact Jack on 0483 578983. ***Ed.***

Dear Editor,

You may remember that following the publication, in the October 1993 issue of ***FORMAT***, of a glowing review by Stephen Baines of Gerton Lunter's Spectrum emulator for the PC, I wrote to you (and you totally ignored, as ever) a letter pointing out that on my humble 12 MHz 286 the performance in 128k mode was so desperately slow as to be completely useless.

You may be interested to learn that in a recent letter Brian Gaff says "We now discourage people who wish to run Z80 on anything less than a 386SX 25MHz with 2MB. They must also install a memory manager like EMM386 or QEMM".

This, I think, completely vindicates my earlier comments.

Yours sincerely, Alan D.Cox.

Looking back over past issues you have had quite a few letters published, and I think you will understand that we only have limited space. Sometimes we have to leave out some letters in order to achieve a balance.

To run the Z80 emulator at 'real' Spectrum speed you do need a fast machine. The older 48K emulator will run on a 286 at a reasonable speed but you can't knock the latest 128K version just because it needs a bit more power. If your machine lacks the power you just have to put up with the slower speed - or do what I do, use the best device so far made for the job - a ZX Spectrum itself. ***Ed.***

Dear Editor,

I sent an order to you on the 21st February for back issues of ***FORMAT***. When my March issue arrived I was surprised to find there were none of the back issues I ordered. I have checked with my bank and my cheque for £15 was cashed on the 25th February. It is now the 26th of March and still no sign of my order. Can you please check your records and see if my order has been overlooked.

Yours sincerely, Richard Kent.

You will have received your order at the same time as your April issue Richard. The problem is that we need to do the updates and order processing between the time that ***FORMAT*** goes to the printers and the time it comes back. That way we have the labels printed and on the envelopes so we can stuff them with ***FORMAT***s and get them out of the door as fast as we can.

Once we start the computer run any other orders or renewals that come in get shunted forward into the following month. It would be impossible to find a single envelope among the thousands that are piled up just to add in the back issues you ordered.

We do make exceptions for items, like SAM keyboards, without which peoples computers would be useless. However, the monthly 'batch' processing was introduced some years ago because it enables us to post with more security. There was a time when a considerable amount of post was going missing but since the system has been up and running this has come down to a very small level. This helps us to make sure the Royal Mail pay up for any items they lose and so, in the end, all our customers benefit from lower prices. ***Ed.***

Dear Editor,

On another subject, regarding a readers problems with RF emissions. An aerosol is available from Maplin Electronic Supplies which contains a conductive nickel based coating. The idea is to coat the inside of a plastic casing to create screened box. The coating may work better if connected to the computer zero volt supply rail. I hope this will be of some use.

Yours sincerely, M.Rookyard.

Dear Editor,

As agreed on the phone earlier today, here are details of the advert in this months issue of FORMAT which I am querying. It is from Prism PD.

I have included a copy of the letter they sent to me AFTER I had sent them 5 x 3½" discs and a C60 cassette.

To restate my main objections:-

1) The advert does not ask for an SAE to be sent in all cases, it implies only for emulators.

2) The advert states FREE software, although in actual fact a copying fee is charged for each piece of software requested. (No mention is made of it being a PD library either).

I look forward to hearing from you soon.

Yours sincerely, Marcus Prichard.

I have read both your full letter and the copy letter from Prism PD you sent. It would appear that you have misunderstood their advert.

Given their name - Prism PD, I can't see how you can be surprised at the fact they are a PD software service. They, like all PD companies are allowed to charge a reasonable fee/handling charge for duplication and distribution of PD software (what is 'reasonable' is open to

debate and we wont go into that here and now).

As to the SAE matter, it is normal to send return postage whenever you write to someone. OK, I admit the advert does not specifically ask you to send an SAE for a list of the titles but I would have thought most people would have done that anyway. ***Ed.***

Dear Editor,

I am the wife of a SAM/Spectrum user. However, in this instance it is with reference to his SAM Coupé that I feel that I should put my fingers to the keyboard and write.

Last year Matthew bought his SAM in John Menzies for £20 (what a bargain). He had previously explained, in detail I might add, how wonderful this machine was reputed to be. So when he actually saw one reduced from £79.99 to the aforementioned price and I saw his face light up and his cheque book leap from the pocket of his jacket, who was I to refuse. Little was I to know that this would be the start of an affair with which I could not compete!

SAM (I presume it's a she) was taken home and a project commenced in order to bring her up to spec. Foolishly I thought that all she would need would be a few leads here an there and maybe a printer interface. Not so, Matthew set to drawing little diagrams, setting targets, budgets etc., for the aforementioned project. It was just like being back at work!!

Since the commencement of the project some eight months or so ago I have had to listen to his wracked sobs which then turned to frustration when various items, having been ordered and paid for, failed to drop through our letter box. I have seen the man crushed when on several occasions a jiffy bag dropped on the mat only to find that it was something for me instead of his beloved SAM! I have also had to listen to blow by blow accounts of his conversations with your ladies who work at ***FORMAT*** (especially Jenny who I now believe probably knows Matthew better than I do!!)

This saga is continuing with the recent revelation that SAM may have to go away in order to have her second disc drive implanted. This operation will take some while and she will be missing from the matrimonial home, a thought which my husband can bearably bring himself to contemplate.

Here I must confess that my main problem is my total inability to understand what he is going on about half the time! I feel sure that there must be some other wives/husbands who feel the same, who have had to listen to their spouses rabbit on and on about this bit and that bit and delays in posting, telephones conversations with Jenny, West Coast Computers, Blue Alpha, disc drives and what is an INDUG when its at home!! Perhaps it's time for and Independent Support Group (INDSUG).

Well having got that off my chest I must also confess that when I am able to prise Matthew's hands off of the SAM keyboard, after her recuperation from her operation of course (how long is the waiting list these days?), I intend to have a go myself in order to understand fully what the fascination with this machine is, and so I don't feel such a fool when he starts to explain the ins and outs of this white plastic box with buttons on.

Yours sincerely, Helen Gallagher

Well, Helen I'm sure you are not alone when you say you are the neglected wife of a SAM owner. Perhaps if you married 'gentlemen' SAM owners would just tear themselves away from ***FORMAT*** for a few minutes and allow their wives to read this bit then perhaps we may get enough response to start an Independent Computer Widows Group. Although I must admit that more and more of our new members are females. So maybe there are a few neglected husbands out there too. Perhaps I will pass on any letters I get on this subject to you. I do recall having many conversations with your husband and commend him for his patience in setting up his system, a lot of the delays have been explained in ***FORMAT*** before. Matthew has just been unfortunate in picking the wrong times to order certain bits, but hang on in there you've nearly reached the top of the mountain.

I hope Helen, that you will get as much pleasure from this machine when you get into it, although I'm a little bit worried about you sharing SAM. Perhaps you will have to start the whole project all over again in order to get your own machine. By the way is SAM male or female, Bob should know this one. ***Jenny.***

SAM is most definitely female - otherwise she would not have so many male followers would she? ***Bob.***

Dear Editor,

I know that the start of this letter looks much the same as every other letter you receive, but I have just got to jump on the band-wagon and say it myself. I would like to congratulate everyone involved in putting ***FORMAT*** together for producing an excellent and informative magazine. It is a real joy to read a magazine that has been put together by people who enjoy home computing from a more serious side - and are not simply interested in the trendy aspects of computing today.

Now to the purpose of this letter. I have noticed over the past months that SAM is achieving a great deal of attention by your magazine. The products available for it appear to have improved quite dramatically over the months - with what I believe are virtually professional quality products such as spreadsheets and word processors etc., - whilst still maintaining a fine ability for entertaining. I do not have a problem with this - except that I don't own one (yet)! You see I have been contemplating upgrading to a SAM from my humble 48K (Mk II) Spectrum for a while now - but so far I have not been able to wholly justify it. This brings me to the point of my letter - can you enlighten me?

I use my Spectrum largely in conjunction with a RAM Music Machine for MIDI control a couple of digital keyboards. Whilst not being in the Atari ST league for MIDI computer music the Spectrum is still perfectly capable for my needs - i.e. purely home entertainment. I am interested to know if there is any software available for the SAM in conjunction with MIDI. I know that a MIDI interface is included as standard on the SAM - but as yet I am unaware of any software that uses it. The potential provided by SAM in terms of memory is excellent for MIDI music applications (such as sequencers) - someone out there must have written some software. Once I can find some software then I shall have no hesitation in purchasing a SAM - particularly as it will run all my other Spectrum software. Until then I can't help feeling that my Spectrum will do what I need (albeit slower)

I hope you can help.

On a completely different note - did you know that Sega Megadrive 'joy-pads' can be used in place of a mouse with a Spectrum (and very probably with SAM too)?

Yours sincerely, Tim Duddridge.

The program you want is MIDI Sequencer which I believe is available from Tim Humphries at 14, Swinscoe Way, Cinacre Woods, Chesterfield, Derbyshire, S40 4UU.

As to the Joy-pads, never used one so I'm not sure. ***Ed.***

Dear Editor,

Please send me a ticket for the April Gloucester Show for which I enclose a cheque and an SAE as requested.

I still regret not having been able to attend the last show, but I'm determined to go to the April one, as it seems to be already attracting a great deal of interest.

Nearly every SAM enthusiast I know appears to be going, several of whom I know personally through the 'SAM Adventure Club' such as Dave Whitmore, Dave Wornham, Dave Ledbury, David Munden, Dave Tonks, as well as some other people who aren't even called Dave.

I'll bring along a few back issues of our adventure club disk magazine, just in case a few people may like to try them. Also, I'll be bringing along a few copies of the adventure game that was used for a competition game at last year's ADVENTURERS' CONVENTION. It's a Spectrum adventure called 'Curse Of The Dragon's Eye' by Martin Freemantle, and we've converted it to SAM disc compatibility. The game only costs £2.50, and may be a good game for anyone who's never played an adventure before, as it's not too hard and is very enjoyable.

One other game I hope to see on sale is 'Truefaith', a very impressive text adventure written by David Haire using the SAM Adventure System. It's only just been released, and costs £5. If more adventures of a similar standard are released on SAM, it'll soon be one of the best home computers for such games.

I realise that adventure-playing is a minority interest, but it helps widen the software choice available to SAM owners.

I hope the plans for the April fair go according to plan, and that it's every bit as successful as we all hope it will be.

Yours sincerely, P.C.Glover.

Is there something about the name David in the SAM world? Could that be the subject of a good adventure game? Time will tell. ***Ed.***

Dear Editor,

Today I looked through back issues of FORMAT and typed in the Tape To Disc routine by Steve Nutting in Vol 1 Nº9 (and the ammendments in Nº10). Admittedly I had to work out and use my own code poker as I could not seem to get his REM compiler to work.

Anyway, it sounds like a good program so I wonder if someone could contact me if they have a working copy on disc. I will gladly refund any costs. My number is 0405-768665.

Yours sincerely, Bernadette Dowsland.

I think it will only work on G+DOS2 and not 2a, but someone may know different. ***Ed.***

Letters may be shortened or edited to fit on these pages.

Please keep your letters short so we can fit in as many as possible each month.

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